THE LAW OF WAGES AND INTEREST.

So great are the issues that depend on a solution of the wage problem, and so baffling has the problem proved, that the presenting of anything that claims to actually solve it involves no little boldness. Is present society rooted in iniquity, and does it give to a few men the earnings of many? Is a robbery in which three quarters of the human family are victims perpetuated and legalized by the "capitalistic" system? These things we shall know if we can find the forces that govern the rate of pay for labor. We shall do more, for we shall discover in what direction the system is tending, and whether its very progress is baneful. We shall know whether the system that perfects society as a whole is merciless to the workers who chiefly compose it. This is little less than knowing whether in the long run human life is worth living. Yet we need, for the moment, to forget this issue in order to settle it; we must aim to study the Wage-and-Interest Law in as unbiased a way as if no practical contests were to be decided by it. An incentive to the most careful analysis the practical issue may well furnish.

One fact makes it comparatively easy to test a theory that claims to settle the problem of wages. Common consciousness testifies that in some way the amount of capital as compared with the number of workers in a society influences wages, and that an influx of new capital, if population remains unchanged, must raise them. The Wage Fund doctrine was an attempt to account for this recognized fact on extremely simple grounds; a certain proportion of all capital is directly paid to workmen; each gets his proportion of it, and if the total amount of it is increased the single shares will increase in a similar ratio. Since we know that wages

come not out of capital, but out of products we totally reject this explanation of the working of an influx of capital; but we do not discard the fact that it causes a rise in wages. We discover the absurdity of one mode of accounting for this known fact, and are driven to account for it otherwise. Products, in some way, determine wages; does capital in some way determine products? The theory that is here to be presented will try to show that it does so; to this extent it will agree with common consciousness.

We need, however, to know not only whether the amount of the social capital determines the general productiveness of industry; we need to know whether it affects the product that may be specifically attributed to labor itself. Does the amount of the social capital determine how much wealth the workmen A, B and C can each produce? Does each of them, under a perfect competitive law, get what he produces? These, indeed, are vital questions; and we may now frankly say that the answer that we shall be able to make, in each case, is yes. When natural economic law has its way a working man gets the amount of wealth that he creates; and he creates more by reason of each addition to the available capital of society. Working man, working instrument, productive agent of any sort, would get under natural law what he or it is worth to society. How much does your labor add to the earnings of the social organism? How much would society lose if you were to stop working and continue eating? That amount gauges your value, and tends under natural law to gauge your pay. "To every man his product, his whole product, and nothing but his product," is not merely the ethical standard of wages; it is the standard that society tends to realize in fact, and that it would realize and forever retain if there were nothing to vitiate the action of a true competitive law.

This principle means that the law of Distribution is a law of *proportionate* production; you decide what each man may take and, in the absence of disturbing influences, does take from the social store when you decide what

he puts into it. The demonstration of the truth is essentially simple; and it may be noted in advance that there is a certain presumption in favor of it. In many ways economists are discovering that, with all its intricacy, society in its advanced stages acts in a way that is akin to its earlier and simpler action. In a neighborhood of isolated men the natural wage of any one would be the game that he could capture or the crop that he could raise. The literal and concrete thing that results from his labor is itself the reward of it. Introduce division of labor; let each man make something and sell it to others, and you have at once a system in which the workers aim, not to get their own literal and concrete products, but to get the value of them. Yet an off-hand judgment would still say that a man under this system would tend to get the amount of wealth that his own concrete product represents. Introduce now the class distinction of capitalist and laborer; let some men own the working instruments and others use them; does each still get what he is worth to society? It is that question that we are to decide by a careful study; but the presumption is that the rule still holds, since social progress usually conforms to laws that are universal, and that give, in advanced stages of the movement, results that are apparent in earlier stages. A complex society is, in its mode of distribution, fundamentally like a simple one.

We ask, however, no present consideration for this mere presumption. Let a critical study decide whether distribution is, in fact, proportionate production; that is, whether the rewards of men tend under natural law to vary directly as their several contributions to the social product.

What particular *men* may create and get is not the question that interests a student of distribution; that interests the men themselves, but it depends on the number of industrial functions that they happen to perform. A man may be a capitalist, a laborer and an employer of capital and labor at the same time. He performs three distinct

functions and produces something and gets something in each capacity. He has little trouble in distinguishing between the different parts of his composite income. A merchant can usually tell about what proportion of his annual gain is to be rated as interest or as wages or as net profit. What the scientist desires to know is what reward society attaches to a particular function; how much, for example, wage-working in itself ensures to the man who thus works.

From the fact that actual men often perform several functions, it follows that when we speak of the social earnings as shared by capitalists, workmen and employers of capital and of working energy, we designate by each of these terms not a distinct class of actual men, who work in the capacity indicated and in no other; we designate economic functionaries made up, in each case, of fractional men. Men are rare who are simply capitalists or simply workmen, while the man who is solely an employer is nearly unknown. Where shall we find the personage termed the capitalist of a typical modern establishment? He is an ideal and composite personage made up of stockholders, holders of bonds or notes, furnishers of working material and workmen themselves, provided that they are kept waiting for an appreciable time for their pay. The composite workman is a body of hired men, including numerous clerks, secretaries, agents, etc., with the employer himself, in so far as he does any routine work of a kind that can be hired in the market. Who, then, is the employer? He is a body of stockholders acting in another capacity. If we are to cause a body of men to appear simply and solely as employers we must make them borrow the money with which they pay for their stock, and hire all the labor, even that of routine management, that is done in connection with it. They must not personally furnish either capital or working energy. It is not easy to find such men; but it is quite easy to distinguish the function, that, if found, they would represent. The employer of

capital and labor is, in practice, a body of men who, in addition to their employing function, actually furnish a part of the capital and the working energy. It is in one of three capacities, which they themselves have no difficulty in separating, that they constitute the collective employer with which the study of distribution has to deal. For convenience, we may continue to speak of the composite personality that performs a particular economic function as though it were a single man.

It is the employer's function that makes a general law of wages and interest possible, for it is he who causes the earnings of labor to tend toward a certain equality in the different parts of the industrial field, and who causes the earnings of capital to do the same. He is continually seeking out corners of the field where special gains are to be had; and that is always places where especially large products are obtainable for the use of society. There is, let us say, a "boom" in the silk manufacture; silk is selling for more than the cost of making it. It is for the interest of society that labor and capital should move in that direction from the places where they are less productive; and thither they go, but not of their own motion. It is the employer who moves them. To him come in the first instance the profits of the transfer. He builds his mill, sets it running, and, for a time, pockets the difference between the total cost of making silk—including interest on capital and the salaries of all managers among the elements of cost—and the selling price of the product as completed and sent to the market. This is pure profit, the share in distribution that accrues to the functionary who hires and puts into productive action all capital and all labor. I have elsewhere examined at greater length than is here practicable the gains accruing to this functionary. They are transient. In our illustrative case different employers will betake themselves to the silk-making group, and those already there will enlarge their operations, till the special profit that allured them is reduced to a zero.

Capitalists and workers—including salaried managers—continue to receive their rewards; but the returns of the men who do nothing but employ them become *nil*. Those men must look elsewhere for sources of gain.

That which now concerns us is not the gains of employers, but the results of what they do as affecting the remainder of society. They do not perform labor, in the normal sense of the term, and they do not furnish capital. They hire and employ both labor and capital, and in so doing are personally distinct from that which they hire and set in action. They *initiate* profitable industry, and the best name for them, and the one that would indicate the service that they render, would be *initiators*. By starting new industrial operations in places where, during the initial period, a profit is to be had, these men keep the productive agents near to their maximum of efficiency, and they cause the earnings of each of them to tend everywhere toward a certain equality. With allowance for all known variations, wages tend toward a general level, and interest does the same. A general wage and interest law is in so far attainable.

We have not yet fully described the initiator's work, and a part of it that is essential to an understanding of distribution we cannot describe without analyzing the nature of the agents that he employs. Here, indeed, we go a little way into a region of abstract thought; but it is a region that men of business continually occupy, and one that offers no difficulties to them or to students. What is the capital that the initiator hires and employs? Is it not tools, buildings, materials, etc. A capitalist has no such things to give to him; what he has to give is, as he might perhaps say, money, but as he would mean, value in indeterminate form. Money, in the sense of currency, even the capitalist does not keep in large quantities in his actual possession. What he keeps is value in easily convertible form; wealth that may be made to assume this shape or that, as necessity demands. He gives to the employer

what is equivalent to a draft on society for a specified value in any form that the borrower may select. The only permanent thing that abides in the ownership of the capitalist is a fund, a quantum of wealth embodied in forms that are continually changing. The capitalist does not own the mill, but he owns the value that he has loaned to the employer to be invested in the mill. Such is the instinctive and entirely philosophical way in which practical men regard capital in the hands of men who own and lend it. It is capital in the abstract.

In the hands of its employer the loan fund becomes concrete; this personage is an embodier of capital. The initiative work begins by giving to the borrowed fund certain serviceable forms. With the money that he gets the employer or initiator builds a mill and buys machinery, materials, etc., and now the capital may be philosophically regarded in that concrete way in which economic science has vainly endeavored exclusively to treat it. After leaving the hands of its owner and entering the custody of its employer, capital enters on a mode of existence in which it corresponds with the descriptions that economic treatises have usually given of it. It is buildings, machines, materials, etc. In the hands of its owner, the capitalist in the true sense, the loan fund earns interest, an annual percentage of itself. In the hands of the employer or initiator the instruments of production that embody the fund earn lump sums. The mills, machines, etc., do what they can, and if their earnings exceed the interest that must be paid, there is a profit accruing from the initiator's work; the pure capital has been wisely embodied.

What is the labor that the initiator hires? Is that also to be treated as a fund of energy to be thrown into this or that outward mode of action as the needs of production demand? Is there a collective personage with labor force to let for hire, and does he allow others to put that force into such forms of activity as they will? This is the exact fact. Labor as well as capital is philosophically regarded

in the abstract, in so far as it remains the property of the collective laborer. Here again the discriminations of the practical man are unerring. To them the human factor in production is labor in the strict sense of the term. It is not men, nor, even in the first instance, concrete actions of men; it is a force latent in men, and to be turned into concrete forms of manifestation by the initiator's act. It is he, the initiator, who determines what productive things brain and muscle power shall do. As it is only after leaving the custody of the capitalist that pure capital becomes axes, wagons, looms, cloth, etc., so it is only after passing from the control of the laborer as such, and giving itself over to the initiator, that the productive energy that constitutes the labor fund becomes wood-cutting, transporting, weaving, tailoring, etc. It is in the initiator's hands that both of the productive agents, the fund of free capital and the force of undirected labor energy, assume the concrete shapes in which the traditional analysis has tried exclusively to study them. The interest problem is the problem of determining the gains of pure capital or productive wealth in the abstract. The wages question is the question as to what fixes the returns of the social fund of pure labor energy; while the problem that interests employers or initiators is that of the conditions that make the lump sums earned by concrete instruments and concrete working operations to exceed the amounts paid for the invested value of the instruments and for the human force that works them. It is to make the mill and the men in it earn more than interest and wages.

We have been indulging in no subtlety of logic, but have been putting into a definite statement a fact that is wholly practical, and that is recognized and acted on, though not formally stated, by men of business. It is a general fund of capital and a general labor force that are free to take form as initiators may direct, that figure as the primary claimants in distribution. If this point is clear the steps that will complete the Wage-and-Interest Law are simple.

While the employer or initiator puts the "money," or pure capital, that he borrows into working instruments, he cannot long keep it in the same instruments. The things in which he invests the borrowed fund are transient and changeful. Looms wear out or become antiquated in form, but while doing so they earn "money" with which to buy new ones. It is in this way, first, that the borrowed fund remains intact. As this process of wearing out old instruments and replacing them with new ones is going on all over the industrial field, the general fund of pure social capital remains unimpaired, though most of the instruments that at any one moment embody it may be perishable. It is, secondly, in this way that capital may be transferred from one branch of industry to another. As looms wear out the "money," or value that they have earned, may be invested in forges, if it so happens that iron working is now more productive than weaving. Though a loom itself cannot be transmuted into a forge, though a woolen mill may not, without loss, be transmuted into a tool factory, yet the capital that was originally invested in the looms and the building may without diminution take shape in forges and in a shop that is adapted to them, provided only that, during their period of service, the looms and mill earned enough to pay for the forges and for the changes in the building. It is thus, by virtue of the fact of continual destruction and replacement that an initiator can do his characteristic work of taking capital out of less productive occupations and putting it into more productive ones.

Can he treat labor force in the same way? Can he transfer it from weaving to blacksmithing? By a parallel process, yes. Labor is changeful, like capital, in its outward forms. The human agents of to-day will wear out, like to-day's machinery; men come and men go, but the working force is permanent; and the new workmen that take the places of the departing generation may be placed in whatever branch of industry promises the largest product. It is true, indeed, that particular workmen may

often be literally taken from one industry and placed in another; a man may actually be transferred from a cutlery shop to a clock factory. Trades of the minute kind that division of labor has given to us may be learned more easily than those of former times; but independently of such transfers of actual men from one employment to another, working energy in the abstract may be transferred from branch to branch of industry, with a rapidity that meets all requirements, by the mere process of directing young laborers whose trade is not yet learned to the employment that is, for the time, the most profitable. The fund of laboring energy is, then, in essential respects like the fund of pure capital; it remains as a permanent fact, though the elements that constitute it change; and it tends to assume the outward forms that yield the largest products.

In a word, we may now state the condition that determines interest and wages. If population be fixed and pure capital increases, what must the new capital do? *It must take less and less productive forms of outward embodiment.* The fund of productive wealth is subject to a law of diminishing returns. As the amount of it increases, and as the number of men who are to use it do not increase, each new increment of the fund is compelled to shape itself into some labor-aiding device that is less productive than were the instruments in which the earlier units of pure capital found embodiment. The last new increment will add something to the returns of the man who employs it; it will shape itself into an instrument that will earn something; but the earnings will be less than were those of earlier instruments of similar cost. As the employer or initiator secures the instruments by hiring the "money" with which to buy them, he must pay a diminished interest for the last money that he hires. The capitalist must abate his claims or see his fund lie partly idle. This means, in current scientific phrase, that the final utility of capital is reduced, and by the most familiar of commercial principles this fact reduces the market value of the whole supply.

General interest is gauged by the earnings of the instrument that the employer or initiator procures with the final increment of borrowed capital.

How this commercial principle, that price is governed by final utility, applies to capital we may see by a simple illustration. There might seem to be a difficulty in the case arising from the fact that capital in its concrete forms is not homogeneous. The utility of the last increment of wheat clearly fixes the price of the entire crop; but the last bushel of wheat does not set the price of the last pound of wool. Why, then, should the utility of capital in the shape of paint brushes set the loan rate of capital in the shape of plows? It does this as we shall quickly see; and if we are willing to look a little more closely we shall see not only that the utility of the pure capital in the paint brushes governs the price of the capital in the plows, but that the actual earnings of the less necessary implements, as they are used by employers, determine the earnings of the more necessary ones. It is as though plows, spades, wagons, engines, oxen, paint brushes, etc., were as homogeneous as kernels of wheat. We shall quickly see how this comes to be true.

Let there be an isolated community living on an island of the sea with a due variety of natural products, and let a dozen families furnish the working force. Give to them now their first instalment of tools; it will take the shape of the instrument that is most needed, let us say, an axe. If there be a capitalist in the case—we care not for the present who or where he is—he can get for his loan approximately what the axe adds to the product created by the community. Let him furnish now a second instalment of pure capital, or productive wealth, convertible into any form; can he get as much for it as for the first? He could do so if the second unit were as productive as the first; but it is not so. It must take the shape of an implement that is less sorely needed than was the axe, let us say, a spade. It is the product that the spade adds to the gains

of the community that gauges the reward of the capital embodied in it; and that product is less than was that of the axe.

Why, however, may there not be two rates of interest, one for each of the units of pure capital? Is not the axe as necessary as ever? Why may not the owner of the capital that is embodied in it get as much as ever? Why may he not demand and get all that the employer and the community back of the employer are willing to pay for having trees felled and wood split? Must a highly useful implement be degraded by the presence of a less useful one, and submit to be rated lower by reason of its company? It must submit to exactly that. Its importance to the community is diminished by the presence of its inferior fellow implement. If the axe were lost altogether, its work would now be carried on notwithstanding its absence. There was a time when the loss of an axe meant the cessation of wood-cutting; now it no longer means this; wood-cutting goes on, though something else stops.

Tools themselves are not interchangeable; one cannot do the work of the other. The units of pure capital in them are interchangeable; one may do the work of the other, and all are, therefore, equally important. We may easily test this principle. The product of anything may be treated by supposing that it is annihilated and ascertaining how much the output of the working force is thereby diminished. As the second unit of pure capital is about to embody itself in the spade let us destroy the axe. Will the community get on without this implement? If so, the loss is measured by the full amount of its productive power; but they will not do so; they will at once restore the axe. The unit of capital that was about to embody itself in a spade will now take the form of the more necessary implement, and the actual loss that the community suffers is that of the spade. By taking away the axe we have actually forced the men to get on without a spade, and the loss inflicted on them is measured by the product of a spade.

Let there be a third increment of capital, taking the shape of a saw. The work of all three will go on together, but the real importance of the units of capital in them will in each case be gauged by the efficiency of the saw. Remove at any time one of the more-needed tools, and the community will replace it by foregoing the one that stands in the series as last and least necessary. Interest is paid not for concrete things, but for pure capital; and that passes freely from form to form, and is everywhere equally rewarded. It is as homogeneous in the abstract as wheat, and the price of it is as amenable as is the price of wheat to the law of final utility.

But we have said that the *actual earnings* of the concrete instruments were reduced to an equality. Can this be possible? Can the axe fell trees, the spade till the earth, the saw fashion lumber and the small brush paint pictures, and all actually earn the same amount for their employers? If wood cutting is as necessary as ever, why should not the community appreciate that fact, though the employer does not? He may force the capitalist to give him money for the buying of the axe for the same amount that he pays to the capitalist for the money that buys brushes; but why may he not make a profit by the means? Why may he not exact from the consuming public a sum for wood cutting that corresponds with the importance of this service? Competition will prevent this, as a little thought will show. The limits of the present paper preclude much study of this point, but it is clear that if an employer could get from the consuming public a profit equal to the difference between the efficiency of an indispensable tool and that of the last implement that he uses at all, his gains would be enormous. Other men would make haste to become initiators; the prices of the products involved would be reduced until the special gain would vanish. Employers get axes at the same cost as brushes, but the community that buys the product gets the whole gain that comes from the operation.

We may with advantage make two simple variations in our supposed case that will bring it into near agreement with the facts of actual life. Men duplicate the more necessary implements at the same time that they procure the less necessary ones. By the time that the insular community has hammers and forges it will have more than one axe, and by the time that it has spindles and looms—not to mention the appliances for decorative art—it will have a considerable outfit of all the tools for cruder processes. By the principle that Professor Jevons has expounded, the last axe on the list is on a par in utility with the last textile implement of similar cost. In terms of our own analysis the final units of pure capital in all of the different forms are of equal productive efficiency. The process that renders all units of pure capital equally important is now a very simple one. Take away axe No. 1, and it is not necessary to transfer any capital from the textile industry in order to replace it; axe No. 2 takes the place of its abstracted fellow-implement. The loss to the community is the same as though the final implement for weaving had been sacrificed.

Elaborate the case *ad infinitum*; give to the insular community a growth that shall identify it with a typical civilized state of modern times; give to it ample lands and an endless variety of implements and occupations, and the principle that we are studying will work, if possible, all the better for the change. The working instruments of society will be of all degrees of efficiency, but the pure capital embodied in them will tend to be everywhere of uniform importance and to get uniform interest.

If population be stationary, and if the fund of pure capital be increasing, interest must fall. As new increments of capital come into the field they take shape in instruments that are less and less necessary. As we have seen, the product of these last instruments tends to fix the standard of interest. Moreover, the new capital is less completely utilized than was the old. Population is too

sparse to keep it in the fullest possible employment. When the insular community has ten axes they are not all in use together during much of the time, and it would be possible to take away one of them and have it unreplaced without inflicting on the community an injury at all comparable to that which would have been caused by taking away an axe when there were only five of them and when these five were in nearly constant use. Here are two distinct causes of the declining efficiency of pure capital; employers are putting it into less and less important instruments and the instruments themselves are coming to be less and less completely utilized.

We shall apply these principles more fully when we study not stationary population and a growing fund of capital, but a stationary fund and a growing population. In this study we are to make the most important possible application of the principle of final utility. It applies to pure labor energy as well as to the fund of pure capital, and it governs wages in a way that in every particular is like the way in which it governs interest. Different acts of labor, as performed by real men, are as unlike as the implements with which the work is done. The movements of a man cutting wood are as little like those of one weaving cloth as the axe is like the loom. The thing that is common to the men is labor energy. This also, as we saw, migrates from one set of concrete forms to another, as the necessities of production demand, and the process of transfer from form to form is identical with that by which pure capital changes its investments. A unit of capital from the weaving outfit took the place of what was lost when the axe was abstracted, not because looms could make themselves into axes, but because the industrial operation that was about to create a weaving tool could be so changed in its direction as to furnish an axe in its place. So working energy and skill from the textile group pass to the wood-cutting group, not because a skilled weaver becomes a wood cutter, but because young men about to enter the

textile group are directed to the agricultural. Old weavers pass out of the field, and the cloth-making force is weakened. In reality, a quantity of working energy has been transferred from one industry to the other.

We saw that advancing civilization not only adds implements of different kinds to the working outfit of society; it multiplies the number of the highly necessary ones. It causes the insular community that we took as a type to procure not only looms, but duplicate axes. In like manner it causes this community to have duplicate wood cutters. As the last axe on the list is, as we saw, on a par in importance with the last textile implement of similar cost, so the final wood cutter in the group—supposing that each man represents one exact unit of working energy—is on a par in importance with the last weaver. The last man in each group is, in fact, of the same importance as the man who has just been introduced to perform a new variety of labor, and who, for the time, constitutes in his sole person the newest working group. The multiplying of workers in the more necessary occupations goes on, step by step, with the multiplying of occupations themselves.

We saw that the effective utility, the practical importance, of all axes is the same as that of the final axe, since if axe No. 1 be taken away, No. 2 at once replaces it. If, in like manner, wood cutter No. 1 be taken away, No. 2 replaces him. The loss entailed on the community is gauged by the importance of the work done by No. 2, and that is on a par with the importance of the final unit of concrete labor in every other group. The society loses no more and no less than it would have done if a weaver or a decorator had gone from his special working group to take the place of the first of the woodmen.

We saw that employers of capital get all kinds of working implements that embody each a unit of value at a cost to themselves that is fixed by the product of the final implement. Axe, saw, weaving tool, decorating tool—each does its work at a uniform cost to the man who uses it.

We saw that this user cannot retain the gain that comes by the fact of getting highly necessary tools at the cost of the last in the list, because the competition of other users or employers compels him to reduce the prices of articles produced by the necessary implements, and to make the community that consumes these articles the sole permanent beneficiary. The same is true of labor. In the absence of familiar causes of variation, wood cutting and corn growing work is done for the same price as is the labor that furnishes refinements and amusements ; and yet the employer or initiator is not the richer by reason of the fact. The community gets the benefit of it, and workmen get it in the proportion in which, as consumers, they constitute the community and furnish the demand for the necessary articles. Food is sold at a price that is far below its absolute utility, and all who eat it get the benefit of this fact.

What now happens if pure capital be fixed in amount, and if the labor force increases ? Will the two distinct causes that, in the former case, depressed interest now act on wages ? Will pure labor energy be forced to manifest itself in working acts that are less and less important ? Will each concrete variety of work be less and less efficiently aided by instruments ? Concerning the second point there is no doubt ; instruments must become scarce, and the aid that they render must become inadequate. Let the twelve men of the insular community become twenty-four, thirty-six, forty-eight ; while a few axes, a spade or two and a little outfit of utensils, terminating with a spinning-wheel and a hand loom, constitute the equipment of movable implements. These, with the land, buildings, etc., remain unchanged in amount and quality. Now, indeed, there is a chance for "world crowding." The workers, as they double and treble in number, press on the capacity, not of the soil only, but of their entire material environment. They utilize every axe, spade, etc., to its utmost capacity. During the longest stretch of every working day they run

the spindle and the loom. It is good for the owners of the productive fund; their incomes are enlarged, since each instrument that embodies its unit of capital does a more efficient work now than formerly, adds more to the product of the society and earns more for the man who employs it. Through this man it does more for the one who furnishes the "money" with which to buy it. But it is bad for the workers; they labor less efficiently than before. They are less well equipped and work, as time goes on, more and more nearly empty handed. They must content themselves with smaller farms, and each of them, instead of having an assortment of tools always ready for his use, must await his turn in using the meagre outfit that exists. There are many shoulders at a single wheel; it is good for the owners of the wheel but bad for the owners of the shoulders. They come to have idle moments, and relatively idle hours and days. There is seen a genuine pressure of population on the capacity of nature to aid labor; for, as Professor Giddings has shown, capital is essentially nature with its labor-aiding power increased.

Clearly, what we may term the mechanical efficiency of labor is reduced. It can create less than formerly of any kind of product, and is worth less to its employer. By so much must its pay be reduced. Yet it might seem that the former of the two principles above referred to might in a measure counteract this influence. That is the principle that we have studied at greater length, and that causes the pay for labor energy to vary according to the importance of the least necessary act that it performs. The wood cutter of our illustration found his wages set by the importance of the work done by the decorator. If anything cuts off the decorative work altogether, it is clear that the final increment of labor energy will thereafter be embodied in something that is more necessary than ornamentation. Will not this be the case as capital becomes scarce? Will not our insular community, if its numbers continue to increase while its capital remains fixed in

amount, be brought to a pass where every worker will be occupied in supplying the barest necessities of life? How could the final increment of labor energy take a more necessary shape than it will do under such circumstances? Ought not wages by our principle to rise? The mechanical inefficiency of labor, its inability to create a large product of any kind, has, seemingly, compelled all workers to spend their energy merely in feeding and clothing each other. The least necessary thing that is done is now almost absolutely necessary. There is no scaling of the wages of the wood cutter to make them to conform to those of the decorator. The influence that tended to depress wages appears to be reversed.

It is not reversed. Workmen do not labor merely to supply the wants of workmen. They labor for the public; and the public includes capitalists and employers or initiators. More scientifically speaking, they work for society as an organic unit, and society still has its higher and less intense wants to gratify. In fact, under the conditions of our illustration, the last social want gratified would become less and less intense, and the final increment of labor energy would take a less and less necessary form. Employers, and especially capitalists, are the consumers that are now to be considered. Some one owns the meagre outfit of land and other productive instruments; and these earn more and more as population increases. The earnings of capital furnish an income to be expended, and here is a chance to observe in full operation the tendency that we have chiefly studied, that which gauges the pay of necessary labor by the product of that which is least needed. The rich members of the insular community spend their incomes on more and more trivial things. It is in their employment that the least necessary forms of labor are to be found. The lackeys of the wealthy represent, if labor be graded on the scale of importance, the last and least increment of it. The product and the pay of this increment are declining; and here is a second

influence that co-operates with the pressure of population on its environment, to bring about a general fall of wages.

Reverse the supposition. Let population be stationary and let capital increase, and the whole effect that we have noticed will be reversed with it. Nature in the true sense will become richer; all men will work to better advantage. The final increment of labor will take a more necessary form. Everything that under the last supposition depressed the earnings of labor will be replaced by an influence that tends to raise them.

Our presentation of this great law has been meagre; but have we not even now clearly before us the connection between the influx of capital into a community and the rise in wages that popular thought connects with it? Do we not see that this influx acts not only on the product of the community, but on the specific product that can be attributed to labor? It makes that product smaller in quantity, and less necessary in quality. Popular thought has, perhaps, a certain appreciation of even this connection, though it is far from analyzing it. It knows in a general way what conditions make every man in the ranks of labor an important member of industrial society. What would it actually mean if the population of a great country were to remain stationary, and if pure capital were to increase? The same effects are of course involved if population increases slowly, and if capital increases very rapidly. It means that instruments of every kind are multiplied and perfected. Highways, bridges, railroads, canals and harbors are improved. Machines of a myriad kinds are diffused everywhere. Steamships increase their tonnage and speed, and locomotives their number and tractile power. Land is improved; there is tile draining, dyke building, fertilizing and irrigating. In cities there is endless building. With a population stationary, while this enriching of nature is going on, does not intuitive thought perceive that every man counts for more and more as a productive factor? The manner of it needs far more of analysis than in this paper we have

given ; but instinctive thought declares, what our brief study seems to prove, that high wages result from a limited population in a rich material environment.

It is, moreover, the whole environment that is the test, not land only, as an inadequate view might conclude. Wages do not necessarily fall as the margin of cultivation of land is pressed outward into poorer and poorer regions. This advance of the margin may be completely counteracted by the increase of capital invested elsewhere, by the building of mills, machines, railroads, steamers, etc. A day's labor may ensure less wheat than formerly, because marginal land is poorer; but the wheat that it does produce may sell for more than formerly, because labor in other groups has become far more productive. An abundance of capital in mills may make farm laborers richer though the marginal lands grow worse from year to year. Indeed, one principle that our analysis would clearly show, if it were carried to a greater length, is that pure capital, as it increases, seeks those forms of embodiment that most benefit general labor. If by any means it were confined to land improvements it would drain rivers, valleys, and irrigate arid wastes on a scale that might easily introduce so much rich land into the tilled area as to cause the discarding of great quantities of that which was formerly rated as poor. If population were stationary, and if pure capital were to vest itself in great quantities in improvements of the soil, the margin of tillage would soon lie in a very fertile region.

What the capital actually does is to make a spontaneous choice between soil improvement and other investments. It does that which makes the whole natural environment most favorable to labor, and which gives to all workers the largest reward that is practicable. To force it upon the land instead of allowing to it its present freedom of selection, would cause the margin of agricultural tillage to recede; but it would affect wages less favorably than they are affected at present. It is the relation of man to his entire

physical environment, as determined, first, by crude nature, and, secondly, by the accumulation and the right use of pure capital that determines the reward of labor.

Slow growth of population and quick growth of capital afford the conditions of rapidly increasing welfare for the working class. Neomalthusianism is to play one important part in the economic study of the future; and a study of the conditions that favor the growth of capital is to play another.

What are the theoretical and ultimate possibilities of comfort for the working man that are inherent in a population that is checked in its growth and an accumulation of productive wealth that is stimulated? Can we hold before us a picture of a workman's paradise that is not a castle in Spain, but is founded on tendencies that any one may see in action? Solutions of the labor problem that would make many workers also capitalists, measures for promoting co-operation, saving and home owning by the laboring class, have all the merit that is attributed to them; but is there nothing in store for the man who still works empty handed? Let population remain unchanged, and let capital increase so rapidly that interest—gauged always by the productiveness of the final increment of capital—falls as rapidly as the amount of the fund increases. The income of the capitalist class then remains stationary, but the fund diffuses itself everywhere, carrying with it the great rise in wages that, as our analysis has shown, must follow such an enriching of the environment of labor. The growth of capital might conceivably make over to the laboring class the whole pecuniary gain that comes from civilization. Is such a result the ideal to be held before us as the consummation of the good tendencies in social life? Does it give the workman's paradise that we have sought?

Here, indeed, are profounder questions than in this paper we may venture to discuss. In a volume that in due time may follow the present essay it may be possible to show that the concentration of capital in the hands of a few in-

dividuals is a harmful influence. Business management demands a certain amount of concentration, while the ownership of the productive fund demands a certain amount of diffusion, if the best results are to be realized. It is best that every workman should become in some way a capitalist, not only because he will thereby get interest as well as wages, but because wages themselves will thereby be made to rest on a securer foundation. The primary element in the wage problem is still that of the amount of productive wealth in existence as compared with the number of men who are to live by the labor that co-operates with it. Man needs to subdue the earth rapidly and to replenish it more slowly. Amid all social complications a man's wage is the true product of his own specific labor, and that product is rendered larger by every addition that is made to the fruitfulness of his environment. Let population press unduly on this environment, and misery will increase by an inexorable law that no rearrangement of society can counteract. Let the pressure diminish, and we may have before us the prospect of an industrial state that is more attractive than an ideal vision, since progress toward it is assured by natural law.

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